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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,794

01/22/2004

Stefan Daume

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EXAMINER

VU, TUAN A

ART UNIT

PAPER NUMBER

2193

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,794	DAUME ET AL.	
	Examiner	Art Unit	
	Tuan A. Vu	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application filed 1/22/2004.

Claims 1-26 have been submitted for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-11, 13-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The Federal Circuit has recently applied the practical application test in determining whether the claimed subject matter is statutory under 35 U.S.C. § 101. The practical application test requires that a “useful, concrete, and tangible result” be accomplished. An “abstract idea” when practically applied is eligible for a patent. As a consequence, an invention, which is eligible for patenting under 35 U.S.C. § 101, is in the “useful arts” when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The test for practical application is thus to determine whether the claimed invention produces a “useful, concrete and tangible result”.

As per claim 1, claim 1 recites a method comprising generating usage task, constructing a pattern therefrom, constructing a model graph representing equivalents in the usage task and the pattern task, and extracting sub-graphs from the model graph. As a whole, the act of creating model graph and/or extracting sub-graphs amounts to computer internal manipulation (emphasis added) of representative data that otherwise does not convey reasonable interaction with real-world application level such that it would necessarily generate a useful, concrete and tangible result; i.e. result being externalized into some application level usefulness. Extracting sub-entities of a model therefore does not fulfill the practical application test requirement; and the

claim as a whole amounts to a non-practical abstract idea, and is rejected for leading to a non-statutory subject matter.

Claims 2-11, 13-14 amount to building abstract (model or pattern) graph entities thus lack reasonable teachings about how such level of abstraction can be carried out into real-world application output; hence do not remedy to the lack of real-world usefulness as set forth in the base claim; hence are also rejected.

Claims 15 and 26 recite the creating of abstract model and extracting of sub-graphs as mentioned above in claim 1; hence are also rejected for the same reasons. Besides, claim 15 recites a system comprising modules and according to the Specifications, these modules for being software implemented do not constitute sufficient hardware support for the claimed system to realize the functionality inferred from the modules. Claim 15 amounts to a non-practical application for not being able to yield tangible output absent any hardware embodiment to help carrying out such functionality.

Claims 16-25 amount to details on how such abstracted graph is constructed; but lack reasonable teachings about how such level of abstraction can be carried out into real-world application output as required by the Practical Application Test; hence are also as non-statutory as the base claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-11, 13, 15-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ankireddipally et al., USPN: 6,971,096 (hereinafter Anki_dipally).

As per claim 1, Anki_dipally discloses a method, comprising the steps of:

generating a usage task (e.g. Transaction request 284 - Fig. 2) from usage data (e.g. CXC 34 – Fig. 2);

constructing a pattern graph (e.g. *transaction definition ... conforms DAG* - col. 14, line 60 to col. 15, line 14) from the usage task;

constructing a model graph which represents a space of equivalents to the usage task (e.g. Transaction instance 270 – Fig. 3; transaction instance uses transaction definition 282 ... to produce ... structure 270 - col. 16, line 41-48) represented by the pattern graph (e.g. transaction definition 280 – col. 16, line 21-40); and

extracting sub-graphs from the model graph (e.g. col. 15, line 15-22; transaction definition 280 – col. 16, line 21-40), wherein each of the extracted sub-graphs is isomorphic to the pattern graph (Note: extracting XML conformant transaction definition of in terms objects, name – see Table 1, Table 2, col. 19, 21 -- according to the graph and DTD requirement of the request to yield sub-graphs of the DAG 270 – Fig. 3 – reads on subgraphs thereof being isomorphic to pattern graph – see XML col. 15, line 1-62).

As per claims 2-3, Anki_dipally discloses capturing the usage data from a user session; wherein the capturing step includes one of retrieving a log file of an application program and intercepting user calls to the application program (e.g. *tracking transaction threads* – col. 11, lines 38-43; Fig. 2 – Note: retrieved incoming packets based on transaction threads received at

service 200 – Fig. 2 – reads on retrieving calls from a file of stored packets related to threads or messages received – see col. 12, lines 62 to col. 13, line 25).

As per claim 4, Anki_dipally discloses that usage data includes API calls (Note: a application user's request to effect queried data from a database – see Fig. 1-2 -- reads on API calls -- see request messaging 40 – Fig 1 – wherein XML content represented via API calls within a DOM also reads on API invocation – see col. 12, line 3-16).

As per claim 5, Anki_dipally discloses wherein the generating task includes separating the usage data into generalizable entities and non-generalizable entities, wherein the pattern graph is constructed using only the generalizable entities (e.g. col. 14, line 55 to col. 15 line 13 – Note: transaction definition as XML form reads on data being generalized as reuseable metadata – see col. 17, lines 32-34; Example 10-13, col. 21-29)

As per claim 6, Anki_dipally discloses wherein the pattern graph construction step includes the sub-step of creating a fully qualified name for each of the generalizable entities, the fully qualified name including a local entity name and an associative qualifier (see Example 10-13, col. 21-29; TABLE 2, 4-5, 7, col. 21-30 – Note: tag name enclosing tag body of XML or DTD format with header tag and indentation thereof reads on local entity name and its associative qualifier – see Fig. 5).

As per claims 7-8, Anki_dipally discloses wherein the pattern graph construction step further includes the sub-steps of merging each fully qualified name into a node of the pattern graph (DAG – col. 15, lines 6-13); and merging each of the associative qualifiers into an edge of the pattern graph (refer to claim 6 – Note: tagged variable reads on node of DAG and

indentation of tag header reads on link to subgraph -- see Fig. 5); wherein the pattern graph is a directed acyclic graph (DAG -- col. 15, lines 6-13).

As per claim 9-10, Anki_dipally discloses wherein the model graph (e.g. Transaction instance 270; col. 18 lines 1-19; Fig. 4-5) is a directed acyclic graph; wherein the model graph retains all the dependencies of the pattern graph (e.g. col. 16 lines 32-61; col. 17, lines 9-11).

As per claim 11, Anki_dipally discloses creating virtual tasks from each of the extracted sub-graphs (e.g. template col. 35, line 29 to col. 56; Table 9, col. 35-36 -- Note: virtual tasks is represented by OPID and OPLINK and definition to join sub-definition of tasks --or sub-graphs -concerning a virtual task implemented via virtual state from template-based declaration).

As per claim 13, Anki_dipally discloses determining an equivalent model graph node by matching node properties of a pattern graph node to node properties of a model graph node (re claim 1: extracting XML conformant transaction definition of in terms objects, name -- see Table 1, Table 2, col. 19, 21; col. 16 lines 32-61; col. 17, lines 9-11 -- according to the graph and DTD requirement of the request to yield sub-graphs of the DAG 270 -- Fig. 3 -- reads on subgraphs thereof being isomorphic to pattern graph -- see XML col. 15, line 1-62, hence pattern graph node conforming with model graph node as per the DAG approach).

As per claim 15, Anki_dipally discloses a system, comprising:

a pattern graph construction module configured to *construct a pattern graph from a usage task*;

a model graph construction module configured to *construct a model graph which represents a space of equivalents to the usage task represented by the pattern graph*; and

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an extraction module configured to *extract sub-graphs from the model graph, wherein each of the extracted sub-graphs is isomorphic to the pattern graph;*

all of which limitations having been addressed in claim 1 above.

As per claims 16-17, Anki_dipally discloses wherein the pattern graph includes nodes and edges (col. 14, line 55 to col. 15 line 13 – Note: transaction definition as XML and DAG form reads on node and edges – see col. 17, lines 32-34; Example 10-13, col. 21-29) wherein each of the nodes includes a node label, the node label including a set of node properties for each of the nodes (see Table 1, Table 2, col. 19, 21; col. 16 lines 32-61; col. 17, lines 9-11).

As per claims 18-19, Anki_dipally discloses wherein the node label is null (see XML/COM ...parser - col. 11/12 --Note: parsing language having a pointer to traverse a tree necessarily envisions a initial null value thereto to prevent crash when no data is found at the end of a referenced position); wherein each of the nodes includes a node value (see Fig. 5-6).

As per claim 20, Anki_dipally discloses wherein each of the edges is directed to reflect the ordering of the nodes (refer to claim 6 - Note: tag name enclosing tag body of XML or DTD format with header tag and indentation thereof reads on local entity name and its associative qualifier – see Fig. 5).

As per claims 21-22, Anki_dipally discloses wherein the model graph also includes nodes and edges, wherein each of the nodes of the model graph is equivalent to at least one of the nodes of the pattern graph and each of the edges of the model graph is equivalent to at least one of the edges of the pattern graph; wherein an equivalent model graph node is determined by matching node properties of one of the pattern graph nodes (Note: the subject matter herein has been addressed in the corresponding rejection set forth in claim 13 -- Note: extracting XML

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conformant transaction definition of in terms objects, name – see Table 1, Table 2, col. 19, 21 -- according to the graph and DTD requirement of the request to yield sub-graphs of the DAG 270 – Fig. 3 – reads on subgraphs thereof being isomorphic to pattern graph – see XML col. 15, line 1-62).

As per claims 23-25, refer the rejections of claims 8-10, respectively.

As per claim 26, Anki_dipally discloses a computer-readable storage medium storing a set of instructions, the set of instructions capable of being executed by a processor, the set of instructions performing the steps of:

generating a usage task from usage data;

constructing a pattern graph from the usage task;

constructing a model graph which represents a space of equivalents to the usage task represented by the pattern graph; and

extracting sub-graphs from the model graph, wherein each of the extracted sub-graphs is isomorphic to the pattern graph;

all of which step limitations having been addressed in claim 1 or 15.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ankireddipally et al., USPN: 6,971,096.

As per claim 14, Anki_dipally discloses extraction of corresponding sub-graphs in the definition structures of a XML DAG with creation of a transaction instance model (col. 16 lines 32-61; col. 17, lines 9-11) but does not explicitly disclose the mapping or extraction step includes the sub-step of: performing one of a breadth-first search(BFS) and a depth-first search (DFS) of the model graph. A tree as taught by XML or DTD in a DOM context implies a form of scanning and traversal effectuated either by depth first or breath first; and this can be inferred from the parser (e.g. DOM - col. 32, line 50 to col. 33 line 15). It would have been obvious for one skill in the art to traverse the markup hierarchy of the transaction definition DAG by Anki_dipally so that either such traversal be DFS or BFS because each of such method would yield a desired pattern of knowledge required to build a record of operations information, requirements or variables/parameters (see Anki_dipally: Example 10-13, col. 21-29; TABLE 2, 4-5, 7, col. 21-30) sufficient to support the creation of the transaction instance by Anki_dipally as set forth above.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ankireddipally et al., USPN: 6,971,096, and further in view of Lai, USPubN: 2005/0044197 (hereinafter Lai).

As per claim 12, Anki_dipally discloses creating virtual tasks from each of the extracted sub-graphs (re claim 11); but does not explicitly disclose performing a stress-test on an application program using the virtual tasks. Using XML structure or messaging to address web services and database query transaction using a model of datastore of XML definition analogous to Anki_dipally (see Anki_dipally: Fig. 1-2), Lai discloses scalability of the services to be rendered for the network request and applications as well as security therein (see Fig. 91, 97) and also teaches stress test (para 0481, pg. 23). Based on Anki_dipally concern for complex

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distribution of multi-threaded request (Threading Models - col. 12-13 and the test for a given application as set forth in claim 11, the desirability to maintain service and test to verify of its proper operation is suggested. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to additionally implement the testing by Anki_dipally with a possibility of a stress-test as mentioned by Lai because this feature would impart more knowledge to the extend of the services by Kai in way that preventive adjustment over the multi-threaded paradigm can be effectuated for the service to be maintained with the purpose to handle the scalability desired in multi-threaded handling as set forth above and in view of Kai's teaching.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (272) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-272-3609.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tuan A Vu', followed by a long horizontal line extending to the right.

Tuan A Vu
Patent Examiner,
Art Unit 2193
January 31, 2007